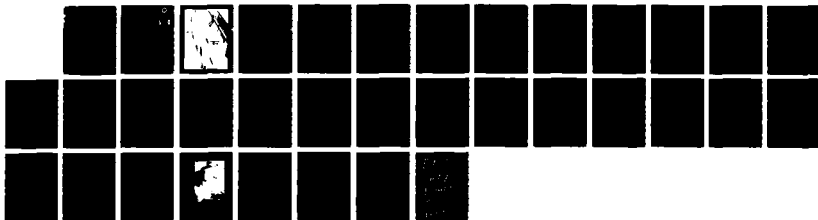


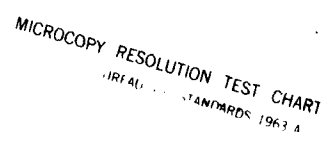
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Naval Dental Research Institute

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SUMMARIES OF RESEARCH

FISCAL YEAR 1987

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NAVAL DENTAL RESEARCH INSTITUTE
NAVAL TRAINING CENTER, BUILDING 1-H
GREAT LAKES, ILLINOIS 60088-5259

SUMMARIES OF RESEARCH
Fiscal Year 1987

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These summaries cover research carried out from 01 October 1986 through 30 September 1987.

This document has been approved for public release; its distribution is unlimited.

Approved and released by:

R. G. Walter

R. G. WALTER
Captain, Dental Corps
United States Navy
Commanding Officer

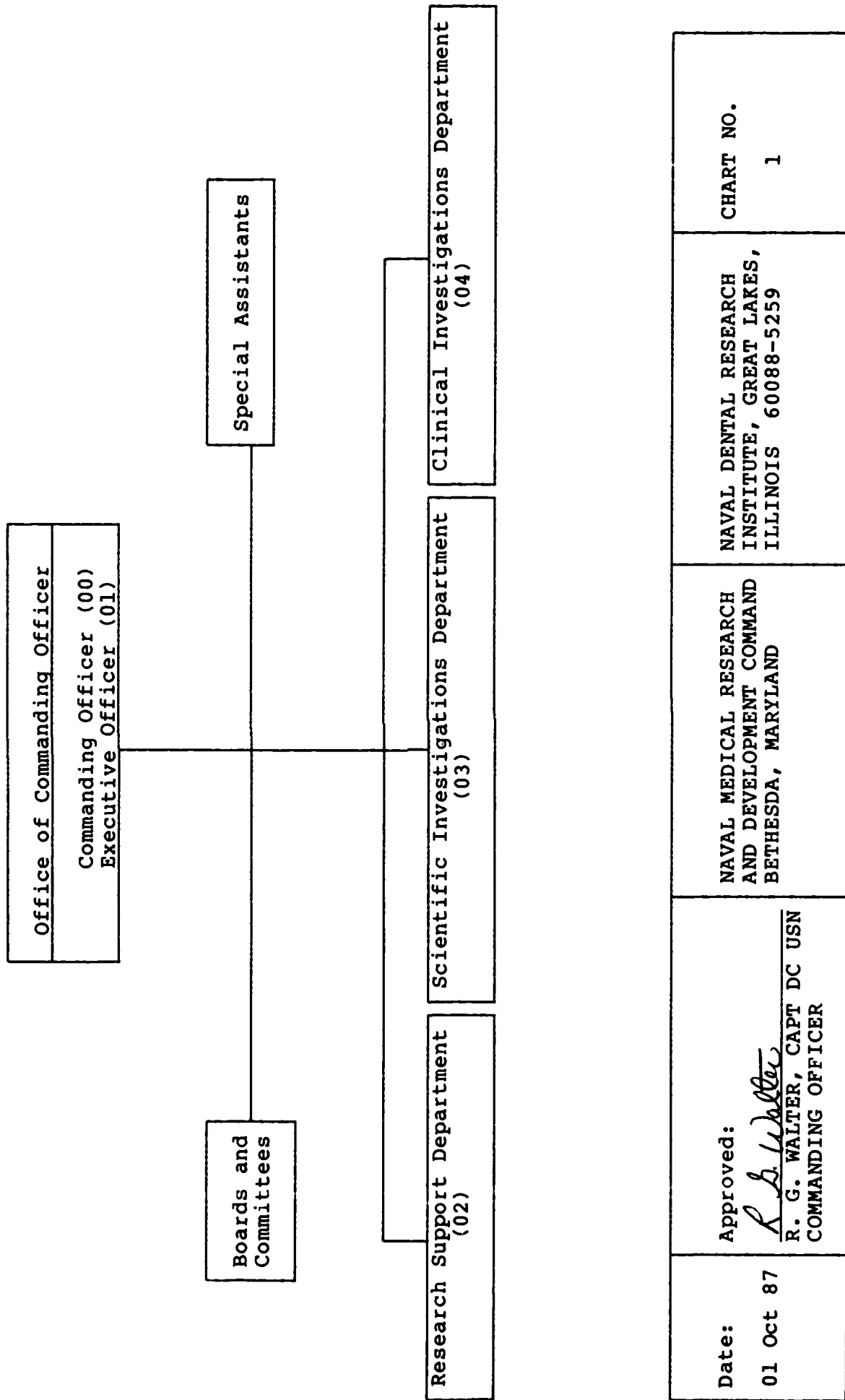
TABLE OF CONTENTS

ORGANIZATIONAL CHART	1
COMMAND OVERVIEW	2
STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS	3

ADDENDUM

WORK UNITS - FISCAL YEAR 1987	A-1
SCIENTIFIC JOURNAL PUBLICATIONS.....	A-2
RESEARCH PROGRESS REPORTS - Fiscal Year 1987	A-3
FORMAL PRESENTATIONS	A-4
PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS	A-7
DISTINGUISHED VISITORS	A-13
HONORS, AWARDS, POSITIONS HELD, CEREMONIES, STAFF ARRIVALS, DEPARTURES AND REENLISTMENTS	A-16

NAVAL DENTAL RESEARCH INSTITUTE
Great Lakes, IL



COMMAND OVERVIEW

COMMAND

The Naval Dental Research Institute was officially established 01 January 1967 with an Officer-in-Charge. The Institute was developed from the Dental Research Facility, which was a Division of the Dental Department of the Naval Administrative Command, Naval Training Center, Great Lakes. The Institute became a fourth echelon command on 17 August 1969. The command is under the direction of the Naval Medical Research and Development Command.

MISSION

→ The mission of the Institute is to conduct research, development, test and evaluation in dental and allied sciences, with particular emphasis on problems of dental and oral health in Navy and Marine Corps populations and on problems of fleet and field dentistry.

PERSONNEL

As of 30 September 1987, there were billets for 8 commissioned officers and 14 enlisted members. In addition there were 12 civilians employed at the Naval Dental Research Institute.

ORGANIZATION

The Institute has undergone reorganization since 1967. The current organization of three major Departments is reflected on the preceding page. The Scientific Investigations Department consists of the Microbiology, Biochemistry and Veterinary Science/Cell Biology Divisions. Respectively, they carry out required microbiological, immunological and bacteriological analyses; biochemical studies of etiological agents and of host factors involved in oral disease; assistance, advice and preparation of specimens for histological analysis; and research in the field of laboratory animal medicine and dentistry. The Clinical Investigations Department conducts research related to prevention and treatment of infections, problems of dento-alveolar trauma and injury, and the delivery of optimal dental care for the naval population. The Research Support Department provides the Institute with supply and fiscal services; library, general clerical services and manuscript preparations; and equipment and facility maintenance, as well as special fabrications and instrumentation support.

STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS

CLINICAL INVESTIGATIONS DEPARTMENT

Some specific accomplishments for FY87 include:

-- **Navy-Wide Survey of Dental Treatment Needs** - Treatment needs information was collected from recruits in two phases based on inprocessing date; 1523 recruits of Phase I (Mar-Apr 86) consisted of personnel with a mean age of 20.9 years. The 541 recruits of Phase II (Jun-Oct 86) had a mean age of 19.3 years and were believed to be, predominantly, recent high school graduates. Non-recruit data was collected from a worldwide random sample of 1063 Navy and Marine Corps personnel.

For Phase I and Phase II recruit samples respectively, the average recruit needed: 3.3 and 2.2 restorations; 1.8 and 1.5 extractions; 669 and 486 prosthodontic services per 1000 recruits; and 157 and 94 endodontically treated teeth per 1000 recruits. Estimates of recruits with at least one periodontal pocket greater than 4mm were 13.9% and 12.2%.

Non-recruits had fewer dental treatment needs in most categories: 1 restoration per non-recruit; 37 endodontic treatments; 542 extractions and 682 prosthodontic services per 1000 individuals. 8.7% of non-recruits had at least one periodontal pocket greater than 4mm.

The dental treatment needs identified in this study show a distinct difference in services required within recruit populations based on date of inprocessing as well as between recruits and non-recruits. These treatment needs are consistent with current results from other civilian and military studies. Reduction in needs among non-recruits may stem from the cumulative prevention and treatment efforts provided during Navy service.

-- **Chairside Highspeed Bur Sterilization in a Bead Sterilizer** - Laboratory and clinical studies evaluating the bead sterilizer as a rapid and reliable method of dental bur sterilization were completed. Laboratory and clinical data showed that a bead sterilizer must be able to maintain $>225^{\circ}\text{C}$ in order to achieve reliable bur sterilization in 60 seconds. Aluminum or stainless steel beads or NaCl sterilization media fulfilled this criterion, while glass bead media did not. A summary report was forwarded to Naval Medical Command.

-- **Ballistic Face Shield** - NDRI continues to actively support the mission of the Navy by developing, in conjunction with Naval Sea Systems Command and Scott Aviation Corporation, a prototype ballistic face shield designed to protect Navy and Marine Corps personnel from fragmentation injury to the head and neck. Sixty-seven prototype face shields were delivered to NDRI by the contractor. The shield weighs 24.8 ounces and can be worn with the

STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS (Continued)

CLINICAL INVESTIGATIONS DEPARTMENT (Continued)

MCU-2/P gas mask having a hose-attached canister system. Technical testing began and initial operational testing was completed. Ergonomic evaluations are in progress at Naval Health Research Center, San Diego.

-- Localized Sustained Drug Release from Degradable Cross-Linked Gelatin Beads - Localized timed-release drug delivery can be accomplished using biodegradable cross-linked gelatin beads. The release rate of 20 mg of dry beads was 16.05 micrograms of tetracycline per hour during the first 24 hours and dropped to 0.05 micrograms/hr after 14 days of sustained release. Although highly variable, the theoretical release rate necessary for efficacy in periodontal therapy has been estimated to be 0.024 micrograms/hr for a molar tooth. Therefore, degradable gelatin beads could be used to deliver a sustained release of tetracycline at biologically significant levels in vivo.

-- Measurement of Periodontal Attachment Loss - Studies addressed measurement problems and the clinical application of the burst theory of periodontal attachment loss; including false positive rates and implications on distributions of periodontal attachment loss. One paper was published and two additional papers have been accepted for publication.

-- Dental Informatics Research - A computerized dental diagnosis program was completed, tested, and delivered to NAVMEDCOM and NSMRL, Groton, for review. Several modifications of a computerized periodontal examination program were incorporated after extensive testing under clinical conditions. Prototype periodontal probe and graphic charting systems continued in development phases. A survey of civilian dental computer systems was completed and a memorandum report submitted to NAVMEDCOM.

-- Dental Amalgam/Composite Longevity Study - A retrospective study was completed on 1405 restorations in 327 subjects. Fifteen years after placement, 82%, 73% and 64% of the 1, 2, and 3+ surface restorations still survived. At 20 years the survival rates for 1, 2, and 3+ surface restorations were 78.5%, 66.1%, and 63.5%, respectively. Life table analysis showed greater than anticipated longevity for all classes of restorations.

-- Estimation of Hypertension from Dental Record Data - At the request of NMPC, NDRI reviewed blood pressure recordings in dental records gathered in a 1986 world-wide Navy survey. Defining hypertension as a systolic ≥ 140 or diastolic ≥ 90 , the recruit (mean age = 20.3) hypertension rate was 6.74%. For non-recruits (mean age = 26.8) the hypertension rate was 8.42%. Single BP readings can be expected to yield a significant false positive rate. Nevertheless, dental examination BPs serve useful screening and epidemiological purposes.

STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS (Continued)

SCIENTIFIC INVESTIGATIONS DEPARTMENT

During FY87, the Microbiology Division investigated rapid diagnostic methods for identifying military personnel at high risk of dental emergencies. The methods included assays with monoclonal antibodies, DNA probes, and microbial enzyme indicators. The Microbiology Division performed quantitative surveys for Treponema denticola in subgingival plaque samples from both military and civilian populations. The results showed that T. denticola antigen is a specific spirochete component that is elevated in severe periodontitis and may be a diagnostic indicator of this disease.

Some specific accomplishments for FY87 include:

-- Monoclonal antibodies against a second serovariety of Treponema denticola were developed and fully characterized.

-- Two clinical studies involving U.S. Navy recruits and university clinic volunteers showed a relationship between T. denticola and severity of periodontal disease. This is the first quantitative evidence of a positive relationship between a specific spirochete species and severe periodontitis.

-- Fluorescent antibody immunoassay procedures have been developed in order to study the relative concentrations of Bacteroides gingivalis and Treponema denticola in adult human subgingival plaque from patients with severe periodontitis.

-- New methods for rapidly diagnosing active periodontal disease in military patients using monoclonal antibodies are being developed. Coagglutination reagents for both T. denticola and B. gingivalis have been developed.

During FY87, the Biochemistry Division a) investigated methods to measure potential diagnostic indicators of periodontal disease risk, such as immune complexes (IC), C-reactive protein (CRP), and microbial trypsin-like activity, in oral fluid or plaque samples, and b) studied various microorganisms associated with periodontal diseases to identify virulence factors.

Significant accomplishments in these areas included:

-- ELISA-based procedures were developed for measuring IC and CRP in gingival crevicular fluid with sufficient sensitivity to detect 600 ng/ml heat-aggregated human IgG (IC standard) and 1 ng/ml CRP, respectively.

-- A BAPNA-in-agar system was developed for measuring oral microbial trypsin-like activity on 96-well microplates. Tests of 11 periodontal organisms showed accurate assessments of enzyme

STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS (Continued)

SCIENTIFIC INVESTIGATIONS DEPARTMENT (Continued)

activity could be obtained with less than 200 ng dry-weight equivalents of cells.

-- Bacterial cell components, obtained by Polymyxin B sulfate extraction and by sonication from 11 periodontal isolates, showed contrasting effects that ranged from inhibitory to strongly stimulatory on the phagocytic functions of human polymorphonuclear neutrophils, as determined by luminometry.

Significant accomplishments of the Veterinary Science/Cell Biology Division in FY87 were as follows:

Human periodontal ligament fibroblasts were cultured successfully. Six of nine explants produced cells which exited the bone fragments and which were adapted to serial culture. Three of these cell lines were examined for alkaline phosphatase (AP) expression. In cultures permitted to reach confluence the cells formed multiple layers. Depending on the cell line studied, 50-90% of the cells within these confluent zones expressed AP. There was no morphological difference between AP positive and AP negative cells.

These cells were also adapted to a ³H-thymidine incorporation assay. The results demonstrated that concentrations of NaF consistent with those found in many dentrifices and rinses are very cytotoxic to human periodontal ligament fibroblasts.

Crude cell wall fractions and intracellular components of the Gram negative bacteria, Bacteroides gingivalis, Fusobacterium nucleatum, and Eikenella corrodens, were applied to confluent layers of human periodontal ligament fibroblasts. Not unexpectedly the application of extracts resulted in loss of alkaline phosphatase production, cell attachment, and viability. The specific components of each fraction that were responsible for the observed effects were not delineated due to the unexpected PRD of the principal investigator.

-- The animal colony was accredited by the American Association for Accreditation of Laboratory Animal Care.

-- The cell biology laboratory was completely renovated during the period September 1986 to February 1987.

-- Eight monkeys were purchased for research projects at NDRI.

ADDENDUM TO
SUMMARIES OF RESEARCH - Fiscal Year 1987

WORK UNITS - FISCAL YEAR 1987

- 61153N MR0412002-0445 - The Pathogenesis of Oral and Dental Diseases
- 63706N M0095003-3028 - Evaluation of New Methods to Prevent and Treat Dental Emergencies in Naval Personnel
- 61102A 3M161102BS10 DA 524 - An In Vitro Model for the Study of Putative Drug Therapies for Acute Oral Diseases
- 62775A 3S162775A825 AA 088-0 - Evaluation of the Effects of New Approaches on Wound Healing
- 61102A 3M161102BS10 DA 439-0 - Cytotoxic Components of Bacteria Important in Maxillo-Facial Wound Infection
- 61102A 3M161102BS10 DA 440-0 - Development and Evaluation of Methods to Prevent or Intercept Acute Dental Conditions
- 63514 S1121SL 24396 - Shield, Ballistic Face Mark 72 Mod 0

INDEPENDENT RESEARCH WORK UNITS

- 61152N MR000.01.01-0055 - An In Vitro Study of the Membrane Potential and Calcium Homeostasis of Alveolar Bone Cells Using Fluorescent Indicators
- 61152N MR000.01.01-0056 - Isolation and Characterization of Biologically Active Factors Elaborated by Oral Capnocytophaga
- 61152N MR000.01.01-0058 - In Vitro Evaluation of Electrical Enhancement as a Metabolic Stimulator of Ligament and Alveolar Bone Cells
- 61152N MR000.01.01-0059 - The Relationship of C-Reactive Protein (CRP) to Periodontal Disease

SCIENTIFIC JOURNAL PUBLICATIONS

Diehl, M. C. Strategy for Large-Scale Dental Automation. Dental Clinics of North America 30:745-753, 1986.

Leone, S. A. and Edenfield, M. J. Third Molars and Acute Pericoronitits: A Military Problem. Military Medicine 152:146-149, 1987.

Ralls, S. A., Cohen, M. E., and Jones, T. R. In vitro study of Crevicular Fluid Sampling Methods: Sampling Variability and Effect of Volume and Orientation on Fluid Removed. Journal of Periodontal Research 21:692-701, 1986.

Ralls, S. A., Southard, T. E. and Cohen, M. E. A System for Computer-Assisted Dental Emergency Diagnosis. Military Medicine 151:639-642, 1986.

Ralls, S. A. and Cohen, M. E. Problems in Identifying "Bursts" of Periodontal Attachment Loss. Journal of Periodontology 57:746-752, 1986.

Ralls, S. A., Cohen, M. E. and Southard, T. E. Computer-Assisted Dental Diagnosis. Dental Clinics of North America 30:696-712, 1986.

RESEARCH PROGRESS REPORTS - FY 1987

NDRI-PR 86-12	Effects of Fixed-Appliance Orthodontic Treatment on DMF Indices
NDRI-PR 86-13	Evaluation Using Sequential Trials Methods
NDRI-PR 86-14	Summaries of Research
NDRI-PR 87-01	Correlation of Acute Pericoronitis and the Position of the Mandibular Third Molar
NDRI-PR 87-02	Computer-Assisted Dental Diagnosis
NDRI-PR 87-03	Strategy for Large-Scale Dental Automation
NDRI-PR 87-04	FDA and Naval Approval Processes for New Drugs and Devices
NDRI-PR 87-05	Problems in Identifying "Bursts" of Periodontal Attachment Loss
NDRI-PR 87-06	A System for Computer-Assisted Dental Emergency Diagnosis
NDRI-PR 87-07	<u>In vitro</u> Study of Crevicular Fluid Sampling Methods: Sampling Variability and Effect of Volume and Orientation on Fluid Removed
NDRI-PR 87-08	Third Molars and Acute Pericoronitis: A Military Problem

FORMAL PRESENTATIONS MADE AT MEETINGS OF SCIENTIFIC
SOCIETIES/GROUPS

OCTOBER

ARTHUR, J. S., presented "The Incidence of Pit and Fissure Caries in Young Navy Population, Implications for Expanding Sealant Use", at the American Association of Public Health Dentists, Bal Harbor, Florida.

NOVEMBER

ARTHUR, J. S., presented "Navy Treatment Needs Survey - Preliminary Results", at the Naval Dental School, Bethesda, Maryland.

SIMONSON, L. G., presented "Use of Monoclonal Antibodies for Periodontal Disease Diagnosis", at the Department of Periodontics, Northwestern University Dental School, Chicago, IL.

SIMONSON, L. G., presented "Anaerobic Microbiology" at the Naval Hospital, Great Lakes, IL.

WALTER, R. G., presented the graduation address at the Naval Hospital Corps School, Great Lakes, IL.

FEBRUARY

SIMONSON, L. G., presented "Quantitative Estimation of T. denticola in Adult Subgingival Plaque" at the joint meeting of the Chicago, Indiana and Iowa Sections of the American Association for Dental Research at Merrillville, Indiana.

SIMONSON, L. G., presented "Spirochetes" and "Monoclonal Antibodies" at the Naval Hospital, Great Lakes, IL.

MARCH

The following presentations were given at the 65th General Session of the International Association for Dental Research in Chicago, Illinois:

DIEHL, M. C., "Effect of Compounding Technique on Diametral Tensile Strength of Fiber-Reinforced Composite Resin"

HALVERSON, B. A., "Increased Cusp Fracture Resistance with Glass Ionomer Bases"

HAMILTON, P. M., "Chairside Highspeed Bur Sterilization in a Bead Sterilizer"

HETZER, M. T., "Effects of Pressurized Set on the Diametral Tensile Strength of Composite Resin"

FORMAL PRESENTATIONS MADE AT MEETINGS OF SCIENTIFIC SOCIETIES/GROUPS
(Continued)

MARCH (Continued)

JONES, T. R., "Explantation and Serial Passage of Human Alveolar Bone-Derived Alkaline Phosphatase Positive Cells"

PEDERSON, E. D., "Trypsin-Like Enzyme Assays of Oral Microorganisms in Agar Gel"

RALLS, S. A., "Sustained Release of Tetracycline from Degradable Cross-Linked Gelatin Beads"

SIMONSON, L. G., "Quantitative Estimation of Treponema denticola in Adult Subgingival Plaque"

WALTER, R. G., presented "Status of Navy Dental Research" at the Navy Breakfast held in conjunction with the International/American Association for Dental Research meeting in Chicago, Illinois.

The following presentations were given at the 29th Navy Occupational and Preventive Medicine Workshop, Norfolk, VA:

ARTHUR, J. S., "The Incidence of Pit and Fissure Caries in a Young Navy Population: Implications for Expanding Sealant Use"

HAMILTON, P. M., "Chairside Highspeed Bur Sterilization in a Bead Sterilizer"

RALLS, S. A., "Computerized Dental Diagnosis for Independent Duty Corpsmen"

SEROWSKI, A., "Ballistic Facial Protection"

SIMONSON, L. G., "Quantitative Estimation of Treponema denticola in Adult Subgingival Plaque"

KEARNS, E. A., presented "Bacteroides" at the Naval Hospital, Great Lakes, Illinois.

SIMONSON, L. G., presented "Monoclonal Antibodies and Immunodiagnosis of Periodontal Disease" to the Chicago Medical School, North Chicago, Illinois.

APRIL

KEARNS, E. A., presented "Pathogenicity of F. nucleatum, A. actinomycetemcomitans, Capnocytophaga, E. corrodens, and W. recta" at the Naval Hospital, Great Lakes, Illinois.

FORMAL PRESENTATIONS MADE AT MEETINGS OF SCIENTIFIC SOCIETIES/GROUPS
(Continued)

APRIL (Continued)

RALLS, S. A., presented "Computerized Periodontal Record" at the Indiana University Dental School, Periodontics Department, Indianapolis, Indiana.

MAY

DIEHL, M. C., presented "Status of a Standardized Dental Nomenclature" at the American Society for Testing and Materials meeting in San Francisco, California.

DIEHL, M. C., presented "History of Computer Applications in Dental Practice" at the American Association for Medical Systems and Informatics in San Francisco, California.

WALTER, R. G., presented the Memorial Day address at ceremonies in Antioch, Illinois.

SEPTEMBER

WALTER, R. G., presented "Dental Treatment Needs of Navy and Marine Corps Personnel" to residents and faculty of the Naval Dental School, Bethesda, Maryland.

PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS

OCTOBER

REESE, W. V., attended Intermediate Leadership, Management, Education and Training course at the Naval Medical Command Northeast Region, Great Lakes, Illinois.

SIMONSON, L. G., attended the Chicago Section American Association for Dental Research meeting, University of Illinois, Chicago, Illinois.

SIMONSON, L. G., attended a seminar "Structure and Properties of LPS from Gram-Negative Bacteria" at the Chicago Medical School, North Chicago, Illinois.

SIMONSON, L. G., attended "Advances and Techniques for the Cell Culture Laboratory" at the Rosemont O'Hare Conference Center, Rosemont, Illinois.

SIMONSON, L. G., attended the Illinois Society for Microbiology Fall meeting in Chicago, Illinois.

NOVEMBER

The Association of Military Surgeons of the United States (AMSUS) meeting in San Antonio, Texas was attended by:

ARTHUR, J. S. WALTER, R. G.

DECEMBER

The Naval Medical Research and Development Command Planning Board Conference in Virginia Beach, Virginia was attended by:

SIMONSON, L. G. WALTER, R. G.

JANUARY

The Great Lakes Dental Society meeting was attended by:

DIEHL, M. C.
HETZER, M. T.

The Chicago Section of the American Association for Dental Research meeting in Chicago, Illinois was attended by:

KEARNS, E. A. SIMONSON, L. G.
DIEHL, M. C. WALTER, R. G.

PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS (Continued)

JANUARY (Continued)

SIMONSON, L. G., attended "Recognition and Killing of Fresh Human Tumor Cells by Autologous LGL and T-Cells" at the Chicago Medical School, North Chicago, Illinois.

FEBRUARY

DIEHL, M. C., attended the Great Lakes Dental Society meeting, Great Lakes, Illinois.

REESE, W. V., attended the American College of Health Care Executives meeting in Chicago, Illinois.

The Chicago Dental Society Midwinter meeting was attended by:

DIEHL, M. C.
HAMILTON, P. M.

HETZER, M. T.
SEROWSKI, A.
WALTER, R. G.

MARCH

The 65th General Session of the International Association for Dental Research, Chicago, Illinois was attended by:

ARTHUR, J. S.
COHEN, M. E.
DIEHL, M. C.
HALVERSON, B. A.
HAMILTON, P. M.
HETZER, M. T.
JONES, T. R.

KEARNS, E. A.
LAMBERTS, B. L.
PEDERSON, E. D.
RALLS, S. A.
SEROWSKI, A.
SIMONSON, L. G.
WALTER, R. G.

The 29th Navy Occupational and Preventive Medicine Workshop, Norfolk, Virginia was attended by:

ARTHUR, J. S.
HAMILTON, P. M.
RALLS, S. A.

SEROWSKI, A.
SIMONSON, L. G.
WALTER, R. G.

The American Society for Microbiology 87th Annual meeting in Atlanta, Georgia was attended by:

KEARNS, E. A.
SIMONSON, L. G.

DIEHL, M. C., attended Computerization of Medical Records at the Institute for Medical Records Economics in Chicago, Illinois.

PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS (Continued)

MARCH (Continued)

The American Association of Dental Schools meeting in Chicago, Illinois was attended by:

ARTHUR, J. S.

DIEHL, M. C.

REESE, W. V., attended the Combat Casualty Care Course (C-4), San Antonio, Texas.

The joint United States-United Kingdom Maritime Combat Casualty Care Workshop in Bethesda, Maryland was attended by:

SEROWSKI, A.

WALTER, R. G.

A meeting at the Naval Medical Research and Development Command on Special Treatment Needs Survey in Bethesda, Maryland was attended by:

ARTHUR, J. S.

COHEN, M. E.

RALLS, S. A.

WALTER, R. G.

SEROWSKI, A., attended the American Society of Mechanical Engineers, Chicago, Illinois.

APRIL

LAMBERTS, B. L., attended the Chicago Section of the American Association for Dental Research meeting in Chicago, Illinois.

LAMBERTS, B. L., attended the Lake Forest Section of Sigma Xi meeting in Lake Forest, Illinois.

The Ballistic Facial Shield, Phase II, Design Review at Scott Aviation in Monrovia, California was attended by:

SEROWSKI, A.

WALTER, R. G.

SIMONSON, L. G., led the Young Investigator Award competition at the Chicago Section of the American Association for Dental Research at Northwestern University Dental School, Chicago, Illinois.

PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS (Continued)

APRIL (Continued)

The Soviet Sea Power presentation at Ross Auditorium, Great Lakes, Illinois was attended by the following personnel:

ARTHUR, J. S.
BRUTON, W. F.
CARROLL, A. L.
COHEN, M. E.
DIEHL, M. C.
GAMBLE, R. W.
HALVERSON, B. A.
HAMILTON, P. M.
HETZER, M. T.
JONES, T. R.

LAMBERTS, B. L.
LAWHORN, M. A.
MORTON, H. E.
RALLS, S. A.
REESE, W. V.
RHODES, S. B.
ROUSE, L. A.
SEROWSKI, A.
WALTER, R. G.

MAY

DIEHL, M. C., attended and was the Chairman of the Health Specialty Information Systems Session of the American Association for Medical Systems and Informatics in San Francisco, California.

HALVERSON, B. A., attended the Great Lakes Dental Society Meeting, Great Lakes, Illinois.

HASTINGS, M. G., attended a Personal Property Utilization and Disposal course in Chicago, Illinois.

LAMBERTS, B. L., attended the Chicago Section of the American Association for Dental Research meeting at Great Lakes, Illinois.

MORTON, H. E., attended Freezing and Quality Control: Cell Cultures and Hybridomas sponsored by the American Type Culture Collection in Rockville, Maryland.

RALLS, S. A., attended a osseointegration course at the Naval Dental School, Bethesda.

JUNE

DIEHL, M. C., attended the MUMPS Users Group Meeting in Atlanta, Georgia.

HALVERSON, B. A., attended the Ninth Annual meeting of the Bioelectromagnetics Society in Portland, Oregon.

HASTINGS, M. G., attended a Budget Formulation course in Chicago, Illinois.

LAMBERTS, B. L., attended the American Society for Biological Chemists meeting in Philadelphia, Pennsylvania.

PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS (Continued)

JUNE (Continued)

The American Society for Microbiology course on "Advanced Anaerobic Bacteriology for the Clinical Laboratory" was attended by the following personnel:

KEARNS, E. A.
SIMONSON, L. G.

SIMONSON, L. G., attended the Illinois Society for Microbiology Spring Meeting at Abbott Park, Illinois.

SIMONSON, L. G., attended the American Dental Association meeting for officers of the Chicago Section of the American Association for Dental Research in Chicago, Illinois.

STEWART, S. P., attended EEO for Supervisors and Managers in Chicago, Illinois.

JULY

DIEHL, M. C., was the instructor for Dental Informatics course at Marquette University Dental School, Milwaukee, Wisconsin.

SEROWSKI, A., attended the SBF and Helmet Brief conducted by the Gentex Corporation in Carbondale, Pennsylvania.

STEWART, S. P., attended the Federally Employed Women 1987 training program in St. Louis, Missouri.

WALTER, R. G., attended the Joint Technology Coordinating Group Briefing of the Office of the Secretary of Defense in Bethesda, Maryland.

AUGUST

A seminar on "DNA-Probe Diagnostics for Periodontal Disease" at Northwestern University Dental School, Chicago, Illinois was attended by:

KEARNS, E. A.
LAMBERTS, B. L.
SIMONSON, L. G.

A continuing education course on More Effective Utilization of Command ADP Resources in Chicago, Illinois was attended by:

COHEN, M. E.
DIEHL, M. C.

PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS (Continued)

AUGUST (Continued)

WALTER, R. G., attended the Strategic Medical Readiness and Contingency (SMRCC) course in Bethesda, Maryland.

SEPTEMBER

The Chicago Section of the American Association for Dental Research meeting at the University of Illinois, Chicago, Illinois was attended by the following personnel:

LAMBERTS, B. L.
SIMONSON, L. G.

A meeting at the Naval Medical Command on Dental Specialty Needs Study was attended by:

ARTHUR, J. S.
COHEN, M. E.
DIEHL, M. C.

GAMBLE, R. W., attended Military Standard Requisitioning and Issue Procedures System (MILSTRIP) course in Chicago, Illinois.

DISTINGUISHED VISITORS

OCTOBER

LT G. Cotiaux, Naval Dental Clinic, Great Lakes, Illinois.

Mr. R. Vincenzi, Scott Aviation, Monrovia, California.

LTC B. Goodwin, Naval Medical Research and Development Command, Naval Medical Command, National Capital Region, Bethesda, Maryland.

CPT M. N. Barnes, Veterinary Service, Fort Sheridan, Illinois.

COL C. W. deLannoy, Veterinary Service, Fort Sheridan, Illinois.

NOVEMBER

Dr. Procy Kebabian, Lake Bluff, Illinois.

DECEMBER

Dr. E. J. Neiburger, Waukegan, Illinois.

Mr. R. Hansen, Naval Sea Systems Command, Washington, D. C.

DTCM G. Beavin, Naval Military Personnel Command, Washington, D. C.

JANUARY

CAPT E. B. Hancock, DC, USN, Naval Medical Research and Development Command, Naval Medical Command, National Capital Region, Bethesda, Maryland.

FEBRUARY

Dr. J. Ogden, Chicago Medical School, North Chicago, Illinois.

CDR R. Wolf, Naval Medical Research and Development Command, Naval Medical Command, National Capital Region, Bethesda, Maryland.

CAPT M. T. Hanst, Naval Medical Command, Washington, D. C.

MSGT A. H. King, Dental Investigations Service, School of Aerospace Medicine, Brooks AFB, San Antonio, Texas.

MAJ C. Weyrauch, USAFSAM/NGD, Brooks AFB, San Antonio, Texas.

DISTINGUISHED VISITORS (Continued)

FEBRUARY (Continued)

Mr. P. Strub, Naval Health Sciences Education and Training Command, Bethesda, Maryland.

Dr. S. Hoff, Chicago Medical School, North Chicago, Illinois.

Dr. S. Achar, Veterans Administration Medical Center, North Chicago, Illinois.

MARCH

Dr. C. Naleway, American Dental Association, Chicago, Illinois.

Dr. H. Kuramitsu, Northwestern University Medical School, Chicago, Illinois.

R. E. Doyle, American Association for Accreditation of Laboratory Animal Care, Bethesda, Maryland.

C. Frisk, American Association for Accreditation of Laboratory Animal Care, Bethesda, Maryland.

APRIL

Dr. J. Heyde, L. D. Caulk Company, York, Pennsylvania.

MAY

Dr. R. Bressman, Skokie, Illinois.

Dr. B. Freydgarg, NSDA, Skokie, Illinois.

Dr. Marion Moore, Memphis, Tennessee.

Dr. C. Goodman, Department of Periodontics, Northwestern University Dental School, Chicago, Illinois.

CDR S. D. Miller, NDCL 313, Naval Reserve Center, Great Lakes, Illinois.

LT S. Y. Colvin, Naval Dental Clinic, Great Lakes, Illinois.

LT T. S. Hansen, Naval Dental Clinic, Great Lakes, Illinois.

LT P. A. Kissinger, DC, USN, Naval Air Station Whitney Field, Milba, Florida.

LT C. Diener, DC, USNR, Naval Air Station Memphis, Millington, Tennessee.

DISTINGUISHED VISITORS (Continued)

MAY (Continued)

LT M. L. Bailen, Naval Dental Clinic, Great Lakes, Illinois.

LT G. F. Danaher, DC, USNR, Naval Dental Clinic, Great Lakes, Illinois.

LT T. M. Pedavol, DC, USNR, Naval Dental Clinic, Great Lakes, Illinois.

Bruce Dhrenl, Mayo Clinic, Rochester, Minnesota.

Ms. C. Stachura, American Dental Association, Chicago, Illinois.

S. M. Gage, American Dental Association, Chicago, Illinois.

JUNE

CDR J. Nazzaro, Naval Medical Command, Washington, D. C.

CAPT S. J. Profiti, Naval Medical Command, Washington, D. C.

CAPT D. E. Furry, Naval Medical Research and Development Command, Naval Medical Command, National Capital Region, Bethesda, Maryland.

Mr. R. Hansen, Naval Sea Systems Command, Washington, D. C.

JULY

HCMC W. M. Griffith, OP093, Naval Medical Command, Washington, D. C.

CAPT R. L. Kjome, Naval Dental Clinic, Newport, Rhode Island.

CAPT T. T. Lineberger, Naval Dental Clinic, Philadelphia, Pennsylvania.

SEPTEMBER

Mr. R. E. Smith, Enzyme Systems Products, Dublin, California.

Mr. R. Hansen, Naval Sea Systems Command, Washington, D. C.

Mr. B. Kozlowski, Naval Sea Systems Command, Washington, D. C.

Mr. M. Lockwood, Kerr Manufacturing, Naperville, Illinois.

Dr. J. Hamilton, Kerr Manufacturing, Romulus, Michigan.

HONORS, AWARDS, POSITIONS HELD, CEREMONIES, STAFF ARRIVALS,
DEPARTURES AND REENLISTMENTS

OCTOBER

DT1 S. R. Harmon was selected for in-service procurement in the Medical Service Corps and was appointed to the rank of Ensign.

ENS S. R. Harmon received a Letter of Commendation from the Commanding Officer upon her departure from NDRI for duty at the Naval Dental Clinic, San Diego.

Dr. B. L. Lamberts received a Merit Performance Award.

A Letter of Appreciation was presented to the following personnel for their work on the Dental Treatment Needs Study:

DN R. R. Biza	DTCS M. G. Hastings
DA A. L. Carroll	DT3 S. B. Rhodes
Dr. M. E. Cohen	DT3 L. A. Rouse
DT1 S. R. Harmon	

NOVEMBER

DA A. L. Carroll was promoted to E-3.

DT2 E. L. Tuten received a second Good Conduct Award.

DECEMBER

DT1 D. B. Bartelme received a second Good Conduct Award.

Dr. E. A. Kearns joined the staff of the Microbiology Division.

Dr. I. L. Shklair received a Letter of Commendation from the Commanding Officer upon his retirement as Head, Scientific Investigations Department after 37 years of federal service.

DT2 E. L. Tuten reenlisted for two years.

JANUARY

DT3 L. A. Rouse received a Letter of Commendation from the Commanding Officer for selection as NDRI's Sailor of the Quarter.

FEBRUARY

DT3 L. A. Rouse received a Letter of Commendation from the Commanding Officer for selection as NDRI's Sailor of the Year.

HONORS, AWARDS, POSITIONS HELD, CEREMONIES, STAFF ARRIVALS,
DEPARTURES, AND REENLISTMENTS (Continued)

FEBRUARY (Continued)

The following personnel received a Letter of Appreciation from the Commander, Naval Training Center for Combined Federal Campaign keypersons.

LT M. T. Hetzer
DT3 S. B. Rhodes
Mr. E. D. Pederson

DT1 D. B. Bartelme received a Letter of Appreciation from the Commanding Officer upon his transfer to the Naval Dental Clinic, Great Lakes, Illinois.

Mr. E. D. Pederson received the Combined Federal Campaign Gold Award.

MARCH

DT2 R. R. Roberson received a Letter of Commendation from the Commanding Officer upon his transfer to IS "A" School, Norfolk, Virginia.

Ms. L. G. Ford received a Letter of Appreciation upon her resignation from the Personnel Support Division.

Dr. L. G. Simonson was elected Vice President (President Elect) of the Microbiology/Immunology Group, International Association for Dental Research/American Association for Dental Research.

APRIL

DT2 E. L. Tuten received a Letter of Commendation from the Commanding Officer from his selection as NDRI's Sailor of the Quarter.

MAY

The following personnel received Letters of Appreciation from the Commanding Officer for volunteering their services at the International Association for Dental Research Annual Meeting in Chicago, Illinois:

DN R. R. Biza	HM2 H. E. Morton
DN A. L. Carroll	DT3 S. B. Rhodes
DT2 M. J. Johnson	DT2 R. R. Roberson
Ms. S. J. Kline	DT3 L. A. Rouse
DT1 G. M. McKendall	DT2 E. L. Tuten

**HONORS, AWARDS, POSITIONS HELD, CEREMONIES, STAFF ARRIVALS,
DEPARTURES, AND REENLISTMENTS (Continued)**

MAY (Continued)

The following personnel received a Letter of Appreciation from the Commanding Officer for their outstanding effort and work for the American Association for the Accreditation of Laboratory Animal Care's site visit:

SP4 D. O. Brown
Mr. D. K. Lenkoski

The following personnel received a Letter of Appreciation for participating in the Navy Occupational and Preventive Medicine Workshop from the Commanding Officer, Naval Environmental Health Center, Norfolk, Virginia.

CDR J. S. Arthur
LT P. M. Hamilton
CDR S. A. Ralls

Mr. A. Serowski
Dr. L. G. Simonson

DTCS M. G. Hastings received his sixth Good Conduct Award.

LT M. T. Hetzer received a Letter of Commendation from the Commanding Officer upon his transfer to the Naval Dental School, Bethesda, Maryland.

LT T. R. Jones received a Letter of Commendation from the Commanding Officer upon his transfer to NAMRU-2, Jakarta, Indonesia.

DT3 L. A. Rouse received a Good Conduct Award.

Dr. L. G. Simonson was promoted to GS-14 Microbiologist.

Dr. L. G. Simonson was promoted to Head (Acting), Scientific Investigations Department, Head, Microbiology Division and Head, Veterinary Science/Cell Biology Division.

DT2 E. L. Tuten received a Letter of Commendation from the Commanding Officer for his selection as NDRI's Sailor of the Quarter.

JUNE

DTC W. F. Bruton reenlisted for four years.

DTC W. F. Bruton received a Letter of Commendation from the Commanding Officer upon his transfer to the USS Dwight D. Eisenhower (CV-69).

LCDR B. A. Halverson received a Letter of Commendation from the Commanding Officer upon his transfer to the Naval Dental Clinic, Great Lakes, Illinois.

HONORS, AWARDS, POSITIONS HELD, CEREMONIES, STAFF ARRIVALS,
DEPARTURES, AND REENLISTMENTS (Continued)



CAPT R. G. Walter observing DTC W. F. Bruton and
DTCS M. G. Hastings signing their reenlistment contract.

HONORS, AWARDS, POSITIONS HELD, CEREMONIES, STAFF ARRIVALS,
DEPARTURES, AND REENLISTMENTS (Continued)

JUNE (Continued)

DTCS M. G. Hastings reenlisted for six years.

HM3 H. E. Morton was frocked to E-5.

JULY

Mr. D. K. Lenkoski was promoted to WG-5 Animal Caretaker.

DT1 G. M. McKendall was awarded the Navy Achievement Medal.

HM2 H. E. Morton was awarded the Navy Achievement Medal.

HM2 H. E. Morton received a Letter of Commendation from the Commanding Officer for his selection as NDRI's Sailor of the Quarter.

CDR S. A. Ralls received a Letter of Commendation from the Commanding Officer upon his transfer to the Naval Dental Clinic, San Diego, California.

DT1 C. Staton reported for duty from the USS Coronado.

DT2 P. K. Tombasco received a Letter of Commendation from the Commanding officer upon her discharge from the Navy.

AUGUST

LCDR M. C. Diehl was promoted to Commander.

DT2 R. W. Gamble received a Letter of Appreciation from the Commander, Naval Training Center for the Navy Relief Society Keyperson.

Ms. M. J. Portis was promoted to GS-7 Support Services Supervisor.

The following personnel received a Letter of Commendation from the Commanding Officer and Sustained Superior Performance Awards for outstanding performance.

Dr. M. E. Cohen
Dr. E. A. Kearns
Ms. S. L. Kline
Mr. D. K. Lenkoski
Mr. E. D. Pederson

Ms. M. J. Portis
Mr. A. Serowski
Dr. L. G. Simonson
Ms. S. P. Stewart

HONORS, AWARDS, POSITIONS HELD, CEREMONIES, STAFF ARRIVALS,
DEPARTURES, AND REENLISTMENTS (Continued)

AUGUST (Continued)

CDR Jeffrey W. Rodden reported for duty from the Naval Dental Clinic, Great Lakes, Illinois.

LT Robert W. Schutt reported for duty from the Naval Dental Clinic, Yokosuka, Japan.

SEPTEMBER

DN R. R. Biza received a Letter of Commendation from the Commanding Officer upon his discharge from the Navy.

Ms. E. L. Calvert received a Letter of Appreciation from the Commanding Officer upon her resignation from the Personnel Support Division.

LCDR T. L. Mapes reported for duty from post-graduate training at the University of Maryland, College Park, Maryland.

Mr. A. Serowski received a Letter of Commendation from the Commanding Officer upon his resignation from the Operational Dentistry Division.

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